



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,413	03/19/2004	Robert R. Atkinson	ITL.1111US (P18783)	7288
21906	7590	06/19/2006	EXAMINER	
TROP PRUNER & HU, PC 1616 S. VOSS ROAD, SUITE 750 HOUSTON, TX 77057-2631			HOFFBERG, ROBERT JOSEPH	
			ART UNIT	PAPER NUMBER
			2835	

DATE MAILED: 06/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/804,413

Applicant(s)

ATKINSON, ROBERT R.

Examiner

Robert J. Hoffberg

Art Unit

2835

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5-11,15-21 and 25-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21 and 25-37 is/are allowed.
- 6) ☒ Claim(s) 1 and 5-10 is/are rejected.
- 7) ☒ Claim(s) 11 and 15-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3/19/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Detailed Action

Response to Arguments

1. Applicant's arguments filed 5/22/06 regarding claims 1-10 have been fully considered but they are not persuasive. Regarding applicant's arguments that an upper portion is coupled to a heat sink and a lower portion is coupled to a printed circuit board prior to plugging the upper portion into a lower portion. The examiner respectfully disagrees. There are no limitations within the claim language that prevents a coupling of an upper portion to a heat sink and a lower portion to a printed circuit board simultaneously as the upper portion is plugged into a lower portion. The method of "plugging an upper portion into a lower portion" includes having "said upper portion coupled to said heat sink and said lower portion coupled to a printed circuit board" suggests that that this step involves all three actions which can occur simultaneously.
2. The examiner withdraws his rejection of the Claims 33-37 under 35 USC 103(a) over Ulen et al. (US 2005/0117305) because the current application and the prior art are commonly owned by Intel Corporation.

Claim Objections

3. Claims 1 and 5-10 are objected to because of the following informalities: In claim 1, "releasably plugging a heart sink assembly into a printed circuit board" should be part of the preamble. In addition, the method steps in the claim should be in the sequence that they are being performed.
4. Claims 11 and 15-20 are objected to because of the following informalities: In claim 11, "releasably plugging a heart sink assembly into a printed circuit board" should

be part of the preamble. In addition, the method steps in the claim should be sequence that they are being performed. The examiner suggestions the following language for claim 11: "A method for releasably plugging a heat sink assembly into a printed circuit board comprising: connecting an upper portion of a releasably plug to a heat sink; connecting a lower portion of said releasably plug into said printed circuit board; telescopically plugging said upper portion of said assembly into said lower portion of said assembly; releasing said upper portion of said plug from said lower portion of said plug for removal of said assembly."

5. Claim 15 is objected to because of the following informalities: "a printed circuit board" should be "the" or "said" printed circuit board because element of printed circuit board is previously recited in claim 11. Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1 and 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (US 6,307,748), in view of Liu (US 2004/0052611).

With respect to Claim 1, Lin et al. teaches a method comprising: releasably plugging (Col. 4, lines 10+) a heat sink assembly (Fig. 1, #80) into a printed circuit board (Fig. 1, #100); plugging an upper portion (Fig. 1, #40) into a lower portion (Fig. 1, #60), said upper portion coupled to said heat sink and said lower portion coupled to a printed

circuit board; telescopically plugging (Fig. 5 and 6) said upper portion into said lower portions; and releasably (between Fig. 9, #68 and #72) plug locking said lower portion in said printed circuit board. With respect to Claim 5, Lin et al. further teaches a method including plugging said lower portion into a hole (Fig. 1, #102) in said printed circuit board. With respect to Claim 6, Lin et al. further teaches a method including engaging a catch (Fig. 8, #48 on bottom of #60) on said lower portion with a spring (Fig. 1, #50) biased rod (Fig. 1, #44) in said upper portion. Lin et al. fails to teach that the lower portion plug locks into the printed circuit upon its insertion. Liu teaches plug locking (Fig. 4, #16) said lower portion (Fig. 4, #11) in said printed circuit board (Fig. 6, #51) upon insertion (Para. 0024, line 6) of said lower portion in said board. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the method of Lin et al. with that of Liu for the purpose of providing an independent means to lock the lower portion to the circuit board to prevent the lower portion from being removed when removing the heat sink assembly from the circuit board.

8. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (US 6,307,748) in view of Liu (US 2004/0052611) as applied to the above claims, and further in view of Coules (US 4,007,516).

With respect to Claim 7, Lin et al. in view of Liu teach the method of claim 6 above, but fail to teach the method of releasing the catch by rotating the rod. Coules teaches releasing the catch (Col. 2, lines 54-58) by rotating the rod (Fig. 5, #36). It would have been obvious to one of ordinary skill in the art at the time of the invention

was made to modify the method of Lin et al. in view of Liu with that of Coules for the purpose of providing a quick means of releasing the catch.

With respect to Claim 8, Lin et al. in view of Liu teach the method of claim 7 above, but fail to teach that the method includes a means to prevent rotation of the rod. Coules further teaches the method includes preventing rotation (Fig. 3, #15) of said rod (Fig. 6, #36). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the method of Lin et al. in view of Liu with that of Coules for the purpose of preventing unintentional disassembly of the fasteners.

With respect to Claim 9, Lin et al. in view of Liu teach the method of claim 8 above, but fail to teach a means to prevent rotation including a flanged rod end on the rod. Coules further teaches the method includes preventing rotation (Fig. 3, #15) (based upon the slot in the catch preventing rotation) includes using a flanged end (Fig. 1, #14) on said rod (Fig. 6, #36) which engages a releasable (Col. 2, line 54) lock. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the method of Lin et al. in view of Liu with that of Coules for the purpose of using a combination of elements to prevent rotation of the rod and lock the rod in a fixed position.

With respect to Claim 10, Lin et al. in view of Liu teach the method of claim 9 above, but fail to teach that the method includes using an extended end of the rod. Coules further teaches the method including using an extending end (Fig. 1, #31) opposite said flanged end (Fig. 1, #14) said rod (Fig. 6, #36) to engage (Col. 2, line 29) said catch and to be released (Col. 2, lines 54-56) from said catch when said rod is

rotated. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the method of Lin et al. in view of Liu with that of Coules for the purpose of providing an extension that permits the heat sink to mounted above the lower portion and the circuit board.

Allowable Subject Matter

9. Claims 21 and 25-37 are allowed.

10. Claims 11 and 15-20 would be allowable if rewritten or amended to overcome the objections set forth in this Office action.

11. The following is a statement of reasons for the indication of allowable subject matter: The claims 11 and 15-20 are allowable over the prior art of record for at least the reason that the prior art fails to teach or suggest a method as in claim 1, comprising a "an upper portion connected to a heat sink", "a lower portion connected to a printed circuit board" and telescopically "plugging an upper portion" into "a lower portion". The aforementioned limitations in combination with all remaining limitations of the respective claims are believed to render said independent claims 11 and all claims dependent therefrom patentable over art of record.

12. Claims 21 and 25-32 are allowable over the prior art of record for at least the reason that the prior art fails to teach or suggest a structure as in claim 21, of a heat sink assembly comprising a "said first portion includes a pair of opposed L-shaped catch members, said first portion is cylindrical having a closed end and an open end, said open end to receive said second portion, said closed end mounting said catches. The aforementioned limitations in combination with all remaining limitations of the respective

claims are believed to render said independent claim 21 and all claims dependent therefrom patentable over art of record.

13. Claims 33-37 are allowable over the prior art of record for at least the reason that the prior art fails to teach or suggest a structure as in claim 23, of a heat sink assembly comprising a "said tubular member includes threads to threadly secure said second portion to a heat sink. The aforementioned limitations in combination with all remaining limitations of the respective claims are believed to render said independent claim 33 and all claims dependent therefrom patentable over art of record.

14. The closest references to the present invention are believed to be as follows: Dehaine et al. (US 5,901,039) teaches an upper portion connected to a heat sink, a lower portion connected to a circuit board and threading an upper portion into a lower portion, but fails to teach that the upper portion telescopically plugs into the lower portion. Lin et al. (US 6,307,748) teach telescopically plugging an upper portion into a lower portion while simultaneously connecting the upper portion to a heat sink and the lower portion to a circuit board, but fails to teach that the upper portion is connected to the heat sink and the lower portion is connected to the printed circuit board prior to the upper portion being plugged into the lower portion. Lin et al. (US 6,412,546) teach a first portion but lacks the structure of a cup shaped member containing opposed L-shaped catches in the closed end.

Conclusion

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert J. Hoffberg whose telephone number is (571) 272-2761. The examiner can normally be reached on 8:30 AM - 4:30 PM Mon - Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn D. Feild can be reached on (571) 272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rex R. Hoffberg

MICHAEL DATSKOVSKIY
PRIMARY EXAMINER

Michael Datskovskiy

06/14/06